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THESIS

A Guide for Implementing Total Quality Management
in the U. S. Coast Guard Reserve

by

David Wiley Williams

December 1991

Thesis Advisor: Roger D. Evered

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Implementing Total Quality Management (TQM) into the U.S. Coast Gua d Reserve involves a major change in the way work is done. The impact will be enormous and universal. Thorough planning must be done to ensure satisfactory integration of TQM. Interviews with the principal officers involved with the TQM initiative were conducted to examine the current status of the project. This study describes the basis of the Coast Guard's TQM philosophy and tools, identifies criteria of successful change, and delineates general techniques for the implementation effort. Resistance to change and overcoming that resistance are explored. A general guide for implementing change in the Coast Guard Reserve is outlined as a product of this research. The guide can be employed so as to be useful for initiating TQM or any new concept into an organization.

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A Guide for Implementing Total Quality Management
in the U. S. Coast Guard Reserve

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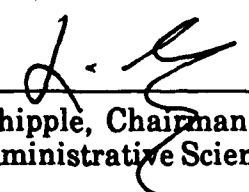
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ABSTRACT

Implementing Total Quality Management (TQM) into the U.S. Coast Guard Reserve involves a major change in the way work is done. The impact will be enormous and universal. Thorough planning must be done to ensure satisfactory integration of TQM.

Interviews with the principal officers involved with the TQM initiative were conducted to examine the current status of the project. This study describes the basics of the Coast Guard's TQM philosophy and tools, identifies criteria of successful change, and delineates general techniques for the implementation effort. Resistance to change and overcoming that resistance are explored.

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I. INTRODUCTION

A. PURPOSE

The purpose of this study is to describe the Coast Guard's Total Quality Management (TQM) method, delineate selected planned change models, and develop a suggested implementation guide to facilitate TQM philosophy adoption for the Coast Guard Reserve.

B. OBJECTIVE

Literature sources on TQM and planned change processes are reviewed. This information is used to develop a workable guide for the implementation of change in an organization, in particular, TQM in the Coast Guard Reserve.

C. RESEARCH QUESTIONS

1. Primary Question

How might TQM be successfully implemented in the U.S. Coast Guard Reserve?

2. Subsidiary Questions:

a. What is Coast Guard Total Quality Management?

b. What is planned change?

c. What are barriers/obstacles to implementing organizational change?

d. How might these obstacles be overcome?

e. What is an effective guide for implementing change?

D. SCOPE, LIMITATIONS, AND ASSUMPTIONS

1. Scope

This thesis covers, in general, the Coast Guard's Total Quality Management method and selected change models. It provides a useful "how-to" guide for implementing change, directed toward TQM, in the Coast Guard Reserve. The intention of the study is to familiarize the reader with TQM, various models for introducing change in organizations, and to provide a general guide for implementing change.

2. Limitations

An in-depth reporting of the full range of quality literature and the various proponents' philosophies was felt unnecessary as the Coast Guard has already chosen the TQM method it will use. This factor influenced the research concentration away from other TQM philosophies toward the organizational change area.

The change literature contains vast amounts of information. The models selected for this thesis are representative of that information, and the evolution of theories in the field of planned change.

3. Assumptions

This thesis assumes the reader has no, or very little, knowledge of the Coast Guard's TQM method or familiarity with change models. The researcher also felt there may be limited

knowledge in some areas of Coast Guard management about TQM and planned change concepts.

The significance of the thesis will be the general knowledge gained by the researcher and the reader on the preceding two topics, and the resulting organizational change implementation guide.

E. METHODOLOGY

This study outlines the Coast Guard's TQM principles and techniques, models for initiating change in organizations, and suggest a guide to carry-out implementation of TQM in the Coast Guard Reserve.

Quality management methods developed by W. Edwards Deming, and others were studied to gain a thorough understanding of the philosophy. Various change models and management concepts were reviewed. Potential areas of resistance were identified and examined, and other problems to adopting a change were identified and diagnosed to develop a viable guide for TQM implementation.

A personal interview was conducted in Monterey, CA with Dr. Reuben T. Harris, co-author of "Organizational Transitions: Managing Complex Change" which outlines the Transitional Change Model. The researcher also interviewed the Coast Guard TQM implementation officer, the Reserve TQM implementation officer, and the Reserve TQM pilot program officer. The latter interviews were conducted in Washington,

D.C., and were designed to determine the progress toward universal implementation of TQM in the Coast Guard to date.

In addition, the researcher attended a two-week Coast Guard TQM Facilitator Training course and a one-week Navy TQM/L Senior Managers' Seminar. The facilitator course was taught at the Coast Guard's Training Center in Petaluma, CA by the Coast Guard's TQM initiative contractor, Organizational Dynamics, Inc., (ODI) located in Burlington, MA. The Navy seminar was conducted by in-house, personnel connected with the Naval Postgraduate School at Monterey, CA.

F. LITERATURE REVIEWED

A comprehensive organizational diagnostic model and several organizational change models from various leaders in the organization development field were reviewed. The models discussed in this thesis are: Lewin's Change Model by Kurt Lewin; The Action Research Model; The Transitional Model by Beckhard and Harris; Sociotechnical Systems Design; and The Seven-S Diagnostic Model by Waterman, Peters, and Phillips.

Various quality improvement philosophies and techniques developed by some of the leaders in the quality field were reviewed. The main ones studied were: Total Quality (Deming 1988); Single-Minute Exchange of Die (SMED) (Shingo 1985); Poka-yoke (mistake-proofing) and Zero Quality Control (Shingo 1988); Taguchi Methods (Ealey 1988); and Group Technology (Snead 1989). Additional literature enhancing Deming's

philosophy by Scherkenbach (1988) and Walton (1986) was also reviewed.

However, the quality section in this thesis concentrated on the Coast Guard's TQM method furnished by its contractor, ODI. In-depth reporting of other quality philosophies was deemed unnecessary as the Coast Guard has committed its efforts to the ODI TQM method, which appears to be an eclectic blend of many of the current quality leaders' ideas.

G. ORGANIZATION OF THESIS

This thesis is divided into five chapters beginning with Chapter I which provides an introduction to the subject, a justification for the research, the research questions, the scope and limitations, the methodology, literature reviewed, and organization of the thesis. Chapter II contains background material on TQM in the Coast Guard and its TQM method. Chapter III outlines selected organizational change models and a comprehensive organizational diagnostic model. Chapter IV furnishes a suggested guide for implementing organizational change. Chapter V offers conclusions and some general recommendations.

II. BACKGROUND

A. CHAPTER INTRODUCTION

This chapter contains background material on TQM in the Coast Guard. Section B briefly relates the genesis of the TQM initiative, and the adoption progress in the active and Reserve service to date. It provides definitions for what TQM means in the Coast Guard, and the various components of the TQM Overlay organization. Section C describes the contractor's method of TQM (now the Coast Guard's way also).

B. HISTORY OF TQM IN THE COAST GUARD

In 1990, the new Coast Guard Commandant decided that the Coast Guard shall adopt a TQM philosophy of doing business. He felt that the demands on the Coast Guard would increase, in concert with more restrictive budget constraints. The Coast Guard had always been a "can do" service, responding effectively to every demand. However, the Commandant wanted to find a more efficient way of doing business because of the tightening purse strings (Eccles 1991).

The Commandant's own exposure to and additional inquiries about the worldwide quality movements increased his resolve that the Coast Guard should improve. Also, consultants had been successfully used in the past. A good example is when the law enforcement boardings were receiving a lot of negative

press. A consultant was employed to improve public notice, the boarding method, the general publicity of the activity, and its improved procedures.

At a flag conference (meeting of 27 Coast Guard admirals) in September 1990, the Commandant asked the attendees to discuss a method to improve the Coast Guard's overall performance. The debate eventually led to quality in management. As a result of this conference, it was determined Total Quality Management was the way to get the efficiency desired, and even improve effectiveness (Eccles 1991). This philosophy will be used to support the commitments of the service as articulated in the Coast Guard Vision Statement.

Organizational Dynamics, Inc., (ODI) was hired from a pool of 25 quality consulting firms previously approved by the Office of Personnel Management. This firm seemed to fit the Coast Guard's needs best from those interviewed. The consultant is to provide training and education for selected Coast Guard personnel, who in turn will become in-house trainers. In addition, ODI will also supply expertise on an as needed basis for the implementation process e.g., the roll-out (occurring in stages) process and the general items that should be in the vision statement. With the following Vision Statement (Kime 1991), the Coast Guard kicked-off its Total Quality Management effort.

The Coast Guard Vision Statement:

The United States Coast Guard is committed to continuous improvement of its performance as the world's leading maritime humanitarian and safety organization.

We strive to be the armed force offering the most challenging and rewarding career for the young men and women of our nation while preserving and honoring those customs and traditions that have served the country so well in peace and war.

We are responsive to changing national priorities. We are willing to explore new areas of endeavor and we seek a balance in response to our traditional missions in support of national security, law enforcement, maritime safety and environmental protection.

We are committed to providing for the welfare of our people and their families so that the Coast Guard can stand, always ready, to serve, protect and enhance our nation's maritime interests.

1. Definition of TQM

Total Quality Management in the Coast Guard (as defined in enclosure (1) to COMDTINST 5224.7, 1) is a strategic, coordinated management system for achieving customer satisfaction that involves all managers and employees and uses quantitative methods to continuously improve an organization's processes. Total Quality Management's foundation is participative management and total involvement.

2. TQM overlay organization

Total Quality Management will be implemented as a parallel structure or overlay to the existing organization, staffed by existing personnel. The current organizational structure exists to carry out the mission. The TQM overlay

will exist to improve the work processes through which the Coast Guard delivers its services to its customers (COMDTINST 5224.7, 2).

There are five important groups in the Coast Guard's TQM Overlay organization structure: Executive Steering Committees (ESC), Quality Management Boards (QMB), Coordinators, Facilitators, and Quality Action Teams (QAT). The following paragraphs outline the duties of each entity as established by COMDTINST 5224.7.

a. *Executive Steering Committee*

ESC's are the top level groups within major commands (HQ, Areas, and Districts) that, among other duties, provide policy guidance to QMB's (COMDTINST 5224.7, 3).

b. *Quality Management Board*

QMB's are permanent cross-functional entities that carry-out and oversee continuing process improvement efforts, charter Quality Action Teams (QAT), and identify critical internal and external customers (COMDTINST 5224.7, 5).

c. *Coordinator*

TQM Coordinators' responsibilities are to arrange, organize, and facilitate Executive Steering Committees (ESC) and Quality Management Boards (QMB). Coordinators also track ongoing Quality Action Team (QAT) efforts inside and outside the immediate unit, and plan and coordinate training for unit personal (COMDTINST 5224.7, 11).

d. Quality Action Team

QAT's are the teams that deal with serious organizational problems, process issues or opportunities for exploitation that are important to analyze and that are often cross-functional, multi-level and interdisciplinary.

Quality Action Teams consist of usually three to seven people associated with the process/problem being addressed i.e., the customer-supplier entities, the people that own the process. This team uses the tools described later to find alternative solutions to problems and alternative decisions for recommendation to the QMB (COMDTINST 5224.7, 8).

e. Facilitator

A facilitator is a person who functions as the coach or consultant (QAT process expert) to a QAT, another group, or an organization. In quality improvement, the facilitator focuses on the process while the QAT team leader focuses on the problem/decision content.

Facilitators provide training to members on the TQM process and tools as it becomes needed throughout the QAT activity (COMDTINST 4224.7, 12). Another important duty of facilitators is to furnish TQM philosophy and tools training to all levels in the organization.

3. Active-service progress

The TQM concept in the Coast Guard is less than two years old. It is presently in the education phase of implementation. The process is now building a "quality infrastructure."

An all-out endeavor is being conducted to get a "critical mass" in the active service indoctrinated in the TQM philosophy and techniques by the end of fiscal year 1992. This entails starting at the top, training approximately 2300 active-service management people as follows: 150 Coordinators, 350 Facilitators, and 1800 managers. As of October 1991, approximately half of these had gone through their respective training.

Two of the ten Coast Guard districts are very active with using the TQM techniques. They already have a few commands with the complete TQM overlay in place. These units are using the skills learned to address problems and make decisions. The remaining districts are proceeding more cautiously (Eccles 1991). The reason for their caution is not readily apparent, however, it seems to be based on lack of knowledge at this point, instead of lack of motivation.

4. Reserve Program Progress

The Coast Guard Reserve consists of approximately 12,000 persons who drill (work) only two days a month, and generally perform two weeks of full-time active duty annually.

The Reserve training in TQM must be done during these drill and active duty periods. This part-time status and reservists' operational workloads when drilling may extend the training and implementation time required for the Reserves. This situation requires careful and comprehensive planning strategies to ensure satisfactory and timely adoption of TQM in the Reserve component of the service.

As of October 1991, the Office of Readiness and Reserve had trained most managers at Headquarters, and was preparing to begin TQM familiarization training for all personnel attached to the office. The current thrust is to build awareness of TQM to begin to change the thinking of Coast Guard people. This change in the way people think will eventually lead to change in the culture of the organization (Bromund 1991).

Progress in the field has been limited to training District office personnel, with one exception. The Fifth District has taken the initiative to create a pilot program consisting of intensive unit management training. This training is being conducted by the former District Reserve Inspection Team which has been renamed the Reserve Quality Team to reflect its orientation away from inspection toward training and coaching (Myers 1991). This pilot program actually evolved from roots established in May 1990 when Reserve Captain Robert E. Myers contracted training for Fifth

District Reserve personnel in quality philosophy, team building, and participative management.

C. COAST GUARD TQM

This section provides the reader with a brief overview of the TQM method adopted by the Coast Guard. The intent is to encapsulate the ideas and tools of three manuals, numerous instructions and other literature on the subject. With this information, it is expected the reader will gain a general understanding of TQM, an idea of its usefulness, and be able to articulate its intended purpose and value to others.

1. The Quality Advantage

The Coast Guard's contractor, ODI, has developed a TQM method which they feel produces The Quality Advantage (TQA) in an organization. Their program seems to be an eclectic blend of ideas and methods from Deming, Juran, Ishikawa, Philip Crosby, Armand Feigenbaum, Tom Peters, and others.

Organizational Dynamics, Inc. provides three levels of training to the Coast Guard: (1) a three day manager's overlay, (2) a five-day coordinator training, and (3) a nine-day facilitator training. The manager's overlay is an introduction to TQM philosophy for senior leaders. The coordinator training is the manager's overlay, with additional training on the specific functional duties of a TQM coordinator. The facilitator training is an expanded version of the preceding two lasting four days, with five days of

intensive facilitator techniques training afterward (Eccles 1991).

In addition, ODI collaborated with Coast Guard senior leaders to begin the conversion to TQM. They assisted in organizing a TQM Implementation Planning Team and a TQM Implementation Project Team to execute the implementation plan. The training courses were part of the plan (Eccles 1991).

2. Pillars of Quality

ODI's TQA consists of five elements they call the "Pillars of Quality" (Organizational Dynamics 1989a). These pillars, shown in Figure 1, are based on organizational values such as honesty, commitment to customer satisfaction, and being the very best that you can be (Coast Guard values, as provided in the Vision Statement, are: continuous improvement of performance, providing challenging and rewarding careers, being responsive to changing national priorities, and committed to the welfare of Coast Guard personnel).
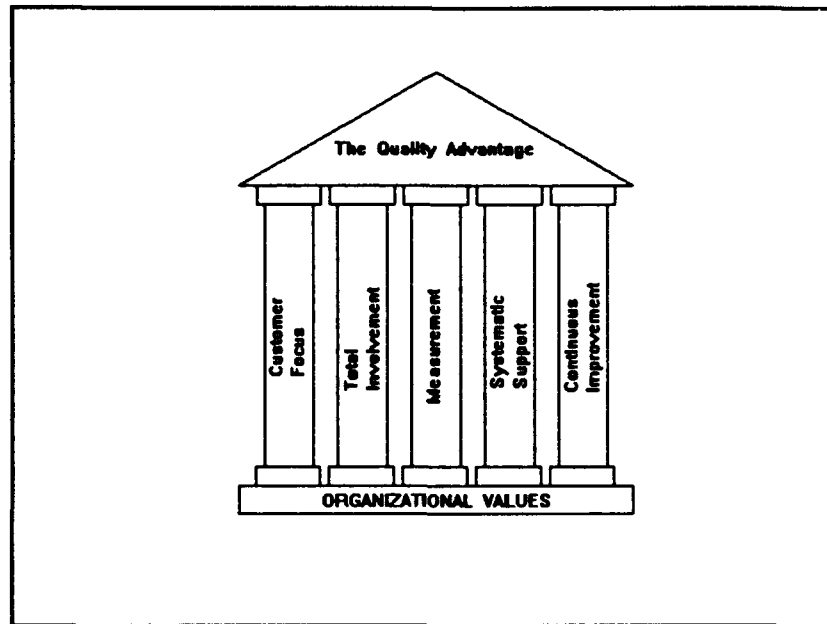
Figure 1   P i l l a r s   o f   Q u a l i t y
(Organizational Dynamics 1989a)

The pillars combine many ideas of other quality proponents' into five important areas of focus for an organization. The five pillars are defined by ODI (Organizational Dynamics 1989a) as follows:

a. Pillar one

Customer Focus (Meeting Requirements) -- Within the organization, products, services, and information are supplied to different customers. This exchange links people and groups as customers and suppliers. The organization can better meet the needs of the final, external customers when each internal supplier works to meet the requirements of each internal customer.

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b. *Pillar two*

Total Involvement (Taking Responsibility for Quality) -- Quality is not just the responsibility of management or of inspection and Quality Control. Everyone in the organization must be involved in achieving quality.

c. *Pillar three*

Measurement (Monitoring Quality) -- What is not measured cannot be improved. Quality goals cannot be met unless baselines are established and the progress toward them charted.

d. *Pillar four*

Systematic Support (Leading and Reinforcing) -- All systems in the organization, such as planning, budgeting, scheduling, and performance management, need to support the Quality effort.

e. *Pillar five*

Continuous Improvement (Preventing and Innovating) -- Things must be done better tomorrow than yesterday. The organization (in the form of everyone) must constantly be on the lookout for how it can correct problems, prevent problems, and make improvements.

This introduction to the Quality philosophy and vocabulary is the beginning of the transformation process; the move from the organization's current way of doing business to the desired method, TQM. When these concepts are understood

and the ensuing problem-solving/decision-making system learned, everyone in the organization will be using the same language and following the same process for those activities.

3. The FADE Process

ODI's method of problem solving uses a group effort or participative process with three to nine members on a Quality Action Team. A QAT is made up of the people (i.e., the stakeholders/customers-suppliers) who own the process or operation that is a problem or bottleneck, and a facilitator.

The problem-solving process consists of four phases: focus, analyze, develop, and execute (known as the FADE system). Each phase is complete once a certain output is achieved. The output of the preceding phase is used as the input for the phase that follows (Organizational Dynamics 1989b). An outline of the four phases is reproduced in Table 1.

TABLE 1. THE FADE PROCESS (ORGANIZATIONAL DYNAMICS 1989B)

PHASES	OUTPUTS
Focus -- Choose a problem and describe it.	A written statement of the problem.
Analyze -- Learn about the problem from data.	Baseline data -- a list of the most influential factors.
Develop -- Develop a solution and a plan.	A solution for the problem. A plan for implementing the solution.
Execute -- Implement the plan, monitor results, adjust as needed.	Organizational commitment. An executed plan. A record of impact.

The FADE process uses several "tools" to accomplish each operation. Many are techniques recommended by other quality proponents. The following, taken from the Organizational Dynamics, Inc., Quality Action Teams, Facilitator Manual (Organizational Dynamics 1989b), is a breakdown of the FADE process and the tools associated with each step.

a. *Focus phase:*

(1) *Brainstorming.* Used to generate a list of problems which are written on a flip chart. There are three methods of brainstorming:

1. Silent. Each person, individually, writes down items for review.

2. Structured. Each person is asked, one at a time, to call-out items to be written on a flip chart.

3. Spontaneous. The process is open to anyone to call out items for consideration.

The objective here is to continue the process until the team feels it has exhausted its ideas on the topic.

(2) *Multivoting.* Used for narrowing down the list of ideas, problems, or options. It is used in conjunction with brainstorming. Each member of the QAT has ten points to assign among the items generated. This tool helps to narrow down the list to the four to six ideas that received the most votes.

(3) Selection Grid. Used to select one option from several possibilities. It involves deciding what criteria are important and using them as a basis for reaching an acceptable decision.

The selection grid lists criteria across the top and options along the side. It is filled-in to evaluate how well each option satisfies each criterion. Some selection criteria are: Is it worthwhile, doable; Do we have the time, interest, management support, and etc.

(4) Impact Analysis. A procedure for discovering what impact a situation has on people and their environment. Ask each team member to describe the impact the current situation has on him or her, on the organization, and on customers -- get specifics. Discuss these descriptions, look for common themes.

This tool should always be used; it confirms that the project is really worthwhile. Often it uncovers new information and ideas.

(5) Problem Statement. Describes a problem, its impact, and the desired state.

This tool is used for gaining consensus among team members on what the problem is, explaining to someone outside the team what the problem is, or demonstrating the effects of the problem and the benefits of solving it.

b. Analyze Phase:

(1) Checklist. A list of things to be done or items to be obtained.

A checklist is used for providing an inventory of information needed for data collection, helps you to be sure you've done everything you need to do, and keeps you organized so you don't have to backtrack. It consists of the information needed, the information's source, and who will get it.

(2) Data-Gathering Plan. Data are facts that can be used as a basis for discussion or decision. There are many techniques for data-gathering, three of which are outlined here:

(a) Sampling. The process of selecting a small group of individuals or items that represent the whole population in which you are interested. Sampling is used to get accurate, representative information when you can't measure all the items in the population.

(b) Survey. The process of asking people for their opinions, reactions, knowledge, or ideas, using face-to-face interviews, paper-and-pencil questionnaires, or a combination of both. Surveys are used to collect usable data about what people know, think, or feel regarding a specific issue.

(c) **Checksheet.** A data-recording form that shows such things as how many times something has happened, when they occurred, the location of events or problems, and etc. A checksheet is used to provide a clear record of data gathered, ensuring that everyone will get comparable data. An example is the number of complaints a department received, by month, over a year's time.

(3) *Fishbone Diagram.* A diagram showing a large number of possible causes for a problem. Detailed causes are attached to a small number of main causes so that the completed diagram looks something like the skeleton of a fish.

A fishbone diagram, shown in Figure 2, is used for getting the big picture of a problem, facilitating team members' use of their personal knowledge to identify causes of the problem, and providing ideas for data collection and/or solutions.
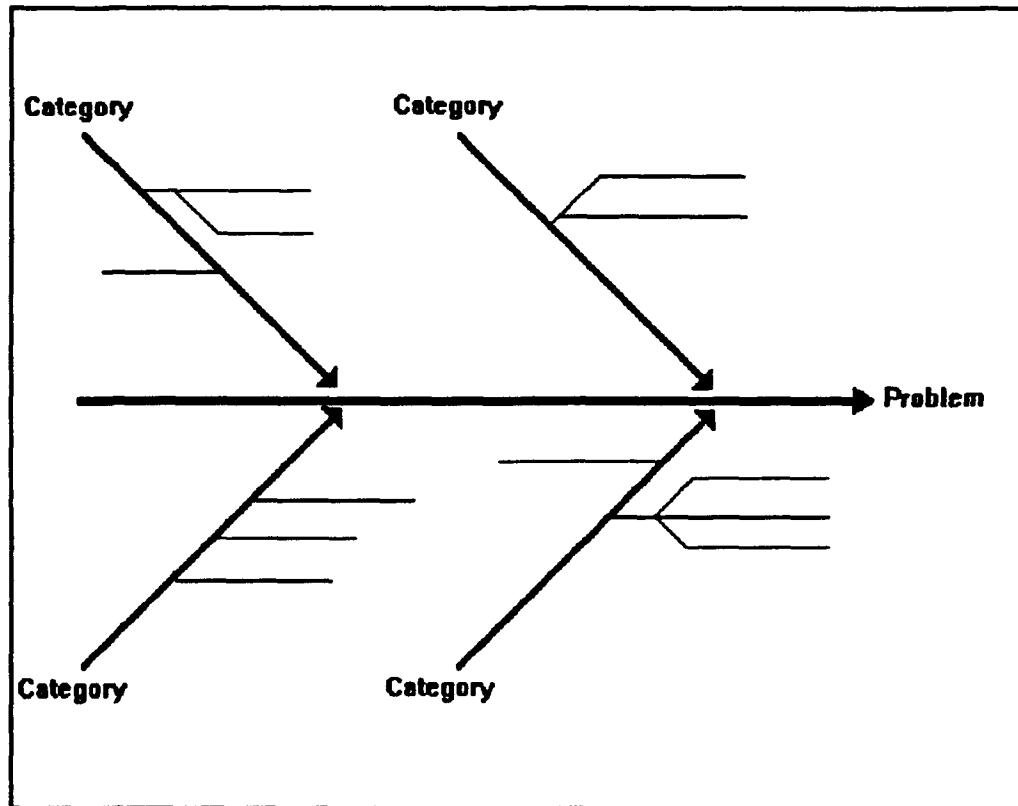
Figure 2. Fishbone Diagram (Organizational Dynamics 1989b)

(4) Pareto Analysis.   A bar chart that visually represents the distribution of occurrences being studied. The most frequent occurrence is represented at the far left, with other occurrences represented in descending order to the right, as in Figure 3.
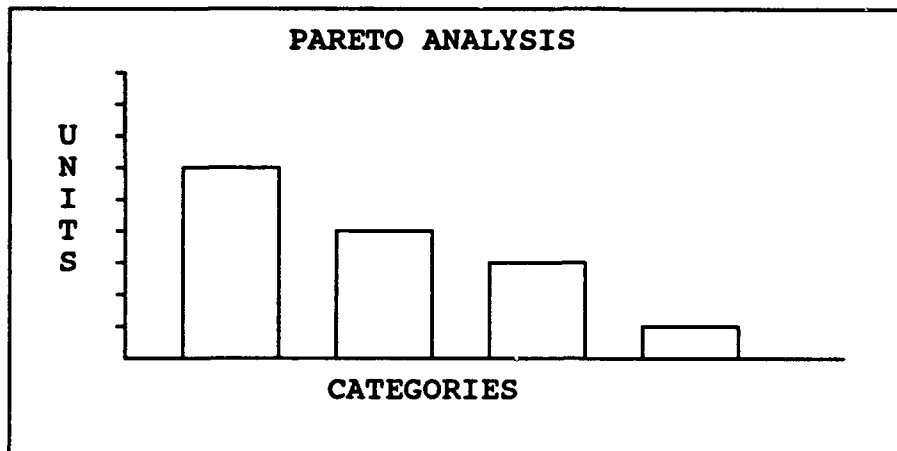
Figure 3   Pareto Chart (Organizational Dynamics 1989b)

Pareto analysis is used for identifying the one or two situation categories in which most of the problems occur. A determination can then be done on whether or not something can be done about a category at that level. Maybe it should be referred to higher authority action, and the QAT concentrate on the next highest category for action.

(5) Flowchart.   A drawing that shows the steps of a work process in the sequence in which they occur is called a flow chart (see Figure 4).

A flowchart is used for understanding and improving the work process, and creating a common understanding of how work should be done. Diamonds are decision points, boxes are activities, and arrows indicate the direction of flow from one activity to the next. It is a picture of the Standard Operating Procedures (SOP), described later.
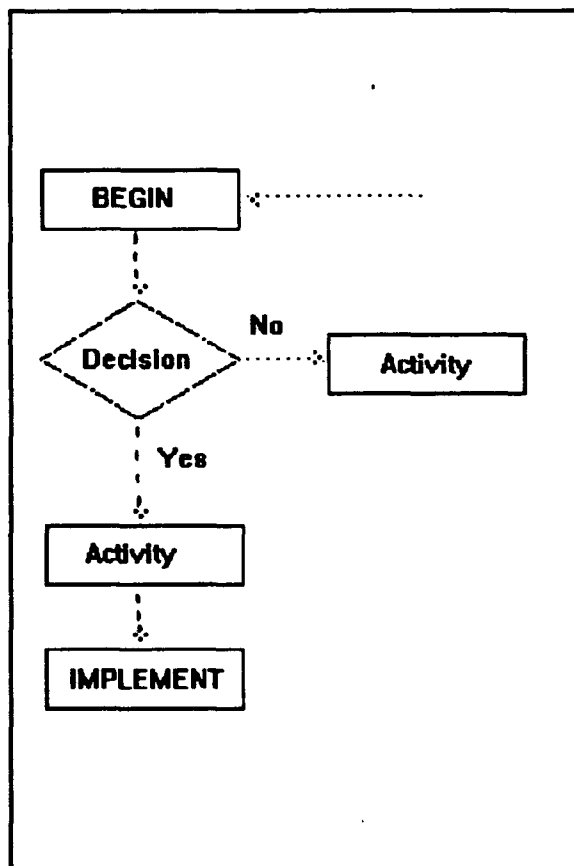
Figure 3   Flow Chart

c. Develop Phase

(1) Innovation Transfer. A tool for developing innovative solutions. It involves using problem solving approaches that were used in other situations in order to generate a number of possible solutions to a different chosen problem. It is often used for getting people out of their current paradigm ("ruts" of thinking or view of the world), and for developing new ideas that can be applied to the problem at hand.

First, list feelings associated with the current situation problem.

Second, list other problems that were solved in which the same feelings were experienced. Select the one with the most similar feelings to the current situation problem.

Third, brainstorm actions taken to alleviate the feelings that were had in that problem.

Finally, transfer ideas from the other problem to the current situation problem to stimulate finding related solutions or paths of action.

(2) Cost-Benefit Analysis. A way to compare, in dollars, the costs and benefits of a number of plans or activities.

A cost-benefit analysis is used for comparing the financial outcomes of different actions, and determining whether a particular action makes sense financially.

(2) Force-Field Analysis. A method for listing, discussing, and dealing with the forces that make possible, and the ones that obstruct, a change you want to make. The forces that help you achieve the change are called driving forces, and the forces that work against the change are called restraining forces (see Lewin's Change Model in the next chapter).

This tool is used for determining if a solution can get needed support, identifying obstacles to execution, and suggesting actions for reducing the strength of the obstacles.

(3) Standard Operating Procedure. A set of explicit instructions detailing the actions necessary to do things right on an ongoing basis.

Standard operating procedure is used for minimizing confusion and inefficiency, especially in a new or changing process, creating common expectations about what needs to be done, training new workers, and showing where to take corrective action.

(4) Action Plan. An outline of who will do what, when, and by what methods. It ensures that nothing is left to chance as you set out to implement a new way of doing things.

An action plan is used for planning the implementation of a solution, and coordinating data collection.

d. Execute Phase

(1) *Building Individual Support.* Communication with other individuals to inform them and gain their commitment. Building individual support is a two-way process: you may find yourself influenced by others at the same time that they are influenced by you. Identify who has formal and informal veto power. Your motto should be "no surprises."

This tool is used for gaining support, informing people, and getting input. It is often used before a formal presentation.

(2) *Presentation.* A method of formal communication, usually conducted for groups. A presentation can be made to any group that needs to be informed or whose commitment is needed. Time is allowed for discussion. More than one presentation may be needed. Presentations help create consensus as each person finds out what others have to say.

A presentation is used for sharing ideas and findings, gaining understanding and support, getting ideas from others, creating consensus among individuals, and teaching skills and procedures.

(3) *Measuring and Monitoring.* Measuring is the means of obtaining data for monitoring or for any other purpose. Monitoring means keeping track of how close you are to where you want to be -- or how far from it.

Measuring is used for following a work process and gathering data to understand a problem. Monitoring is used for identifying unwanted variation at the start of the problem-solving cycle, and completing the problem-solving cycle.

(4) *Basic Descriptive Charts.* A way to describe what is happening by summarizing quantities of data in simple visual displays such as pie charts, bar charts, and trend charts.

Basic descriptive charts are used for seeing results yourself, and presenting results to others.

(5) *Specifications and Control Limits.* Specifications are indicators of the level of performance you want or need. Control limits are indicators of how the process usually performs; they are calculated by applying mathematical formulas to the past history of the process.

Specifications are used for monitoring your process so that you can see at a glance whether it is giving you what you want. Control charts can be used for monitoring your process so that you can see at a glance whether it is doing something unusual i.e., whether it is "out of control."

The FADE process is designed to be used for problem solving by completing each step sequentially, although, not all the tools need to be used for every problem. At the end of the process, all options should have been

considered and an optimal decision reached. If an optimal decision is not found, then one which will "satisfice" the stakeholders (entities who have and interest in the outcome) can be easily reached. Satisfice means a consensus is reached where all parties are satisfied the solution will suffice for the problem. Satisficing helps to avoid sub-optimizing (one part of the organization optimizing, while the organization as a whole suffers) in an organization.

D. CHAPTER CONCLUSION

This chapter presented a brief outline of the beginning of TQM in the Coast Guard, its overlay structure, implementation progress to date, and the major components of the TQM problem-solving process.

The Quality Advantage (Organizational Dynamics 1989a) of ODI contains several meaningful topics which were not discussed. However, these points should be communicated to all members of the Coast Guard Reserve for a thorough understanding of the TQM philosophy. The most important are:

1. The cost of quality, with its necessary and avoidable costs;

2. The customer-supplier chain, with the importance of whether or not a step in the chain adds value to the process;

3. The elements for developing customer-supplier agreements (based on customer needs and supplier capabilities) -- Product, Relationship, Integrity, Delivery, and Expense (PRIDE);

4. The 1-10-100 rule, showing the increased costs of correcting problems as they get farther from the source (1 -- individual or work group level, 10 -- internal level, and 100 -- customer level);

5. The seven steps of the Quality Blueprint; and

6. The steps to becoming a quality leader -- lead by commitment, manage by involvement, support by endorsement, and allow by training and use of TQM techniques.

It is interesting to note, the Commandant was less than satisfied with the present method of problem-solving and decision-making in the service; its lack of standardization and/or comprehensiveness. TQM must offer a vastly improved method over the current procedures.

Another interesting discovery is that no comprehensive assessment of the current organization was done to facilitate the implementation process. No evidence was discovered by this researcher that the organizational elements discussed in the next chapter were reviewed to see what was currently being done on the quality topic, where the organization's strengths and weakness lie, or what might be its opportunities and threats.

Chapter III examines some selected change models and a diagnostic model which are useful tools in implementing any organizational change, such as adopting a new management philosophy and its techniques.

III. DIAGNOSTIC AND CHANGE MODELS

A. CHAPTER INTRODUCTION

The Coast Guard is changing the way it does decision-making and problem-solving to follow the TQM philosophy. To aid in planning the implementation process, it may be useful to explore a sampling of the change models available. This examination may reveal techniques to help facilitate the adoption.

This chapter presents a review of selected planned change models and a comprehensive organizational diagnostic model. In studying something as complex as an organization, it is clear that there is no one paradigm or organizational change model presented in the literature that captures every situation, rather each brings added insight.

Planned change is the deliberate design and implementation of a structural innovation, a new policy or goal, or a change in operating philosophy, climate, and style. Planned change is greater in scope and magnitude than reactive change. It is appropriate when the entire organization, or a major portion of it, must prepare for or adapt to change (Stoner and Freeman 1989, 366).

A model is the concrete embodiment of a theory or a simplification of the real world, described as a series of

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separate parts or functions that make up a whole process. It used to study and convey complex relationships in easy-to-understand terms (Stoner and Freeman 1989, 11). Another significant meaning of model is behaving in an idealized way so that others might learn or change their behavior by identifying with and adopting those behaviors displayed (Cummings and Huse 1989, 537).

The models selected for this paper are Lewin's Change Model, the Transitional Change Model, the Action-Research Model, Sociotechnical Systems Design, and the Seven-S Diagnostic Model.

B. DESCRIPTION OF THE CHANGE MODELS

1. Lewin's Change Model

a. Force-field theory

This early model of planned change by Kurt Lewin is based on his "force-field" theory, which asserts that any behavior is the result of an equilibrium between forces driving for change and restraining forces striving to maintain the status quo (see Figure 5). Driving forces push one way, conversely, restraining forces push the other way (Lewin 1951a). When both sets of forces are about equal, current levels of behavior are maintained in what Lewin termed a state of "quasi-stationary equilibrium" (Lewin 1951b).

Forces for Change	Forces for Maintaining Status Quo
New Technology	Group Performance Norms
Better Raw Materials	Fear of Change
Competition From Other Groups	Member Complacency
Supervisor Pressures	Well Learned Skills
Current Level of Performance	Higher Level of Performance
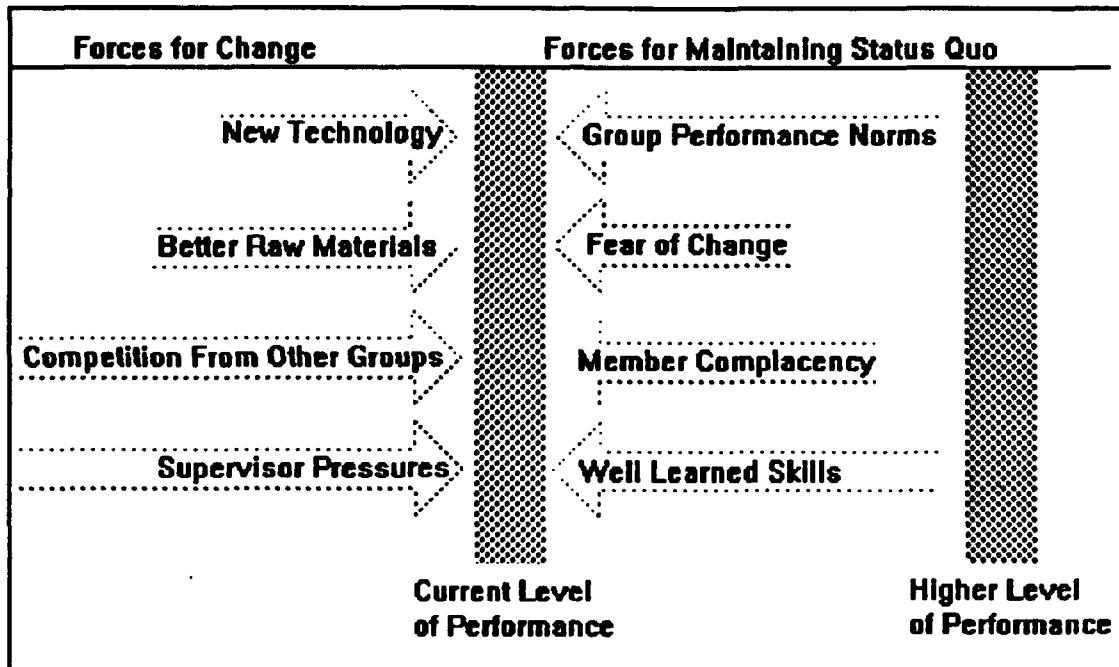
Figure 5. Force-Field Analysis (Cummings and Huse 1989, 99)

This push-push contention immediately brings to mind resistance to change in an organization. The driving forces are the attempts to push the organization (or work group) in another direction (e.g., TQM) because of new technology, budget constraints, competition from other groups, increased productivity demands and the like. Restraining forces are the reactions people have to this drive because of fear of change, comfort with well-learned present skills, complacency and similar opposition.

When there is a push to change, Lewin notes, the natural tendency of people is to push back. These driving forces activate their own restraining forces. Decreasing

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restraining forces is normally a more effective way to weaken the push back i.e., resistance to a change. Modifying the forces maintaining the status quo produces less tension and resistance than increasing forces for change and consequently is a more effective strategy for change (Lewin 1951b).

Lewin states, "The forces can be of many types, and the behavior or performance can be that of an individual, group, or entire organization." Lewin's model reminds us to look for multiple causes of behavior rather than a single cause. The force-field theory also suggests organizations have forces that keep performance from falling too low, as well as forces that keep it from rising too high, such as work norms (Lewin 1951a).

There are two major obstacles to change identified by Lewin. First, individuals are unwilling (or unable) to alter long-established attitudes and behavior. Second, change frequently lasts only a short time. After a brief period of trying to do things differently, individuals often return to their traditional pattern of behavior (Lewin 1951a).

b. The three-step change model

To prevent obstacles of this sort, Lewin developed a three-step, sequential model of the change process: unfreezing, changing or moving, and refreezing (see Figure 6).

(1) Step one. Unfreezing involves making the need for change so obvious that the individual, group, or organization can readily see and accept it. It usually involves reducing those forces maintaining the organization's behavior at its present level.

Unfreezing is sometimes accomplished by introducing information that shows discrepancies between behaviors desired by organizational members and those behaviors they currently exhibit (Lewin 1951a; Lewin 1951b).

(2) Step two. Changing requires a trained change agent (or a change leader) to foster new values, attitudes, and behavior through the processes of identification and internalization. Once organization members perceive their effectiveness in performance increasing due to the change, they identify with the change agent's values, attitudes, and behavior, internalizing them.

A change agent is the individual from outside the organization who leads or guides the process of a change in an organizational situation (Stoner and Freeman 1989, 366). A change leader is on the inside of the organization, and performs the same function, managing the process of change (Harris 1991).

This step shifts the behavior of the organization or department to a new level. It involves developing new behaviors, values, and attitudes through

changes in organizational structures and processes (Lewin 1951a; Lewin 1951b)

(3) *Step three.* Refreezing means locking the new behavior pattern into place by means of supporting or reinforcing mechanisms, so that it becomes the new norm. Some supporting mechanisms are organizational culture, policies, and structures. This step stabilizes the organization at a new state of equilibrium (Lewin 1951a; Lewin 1951b).
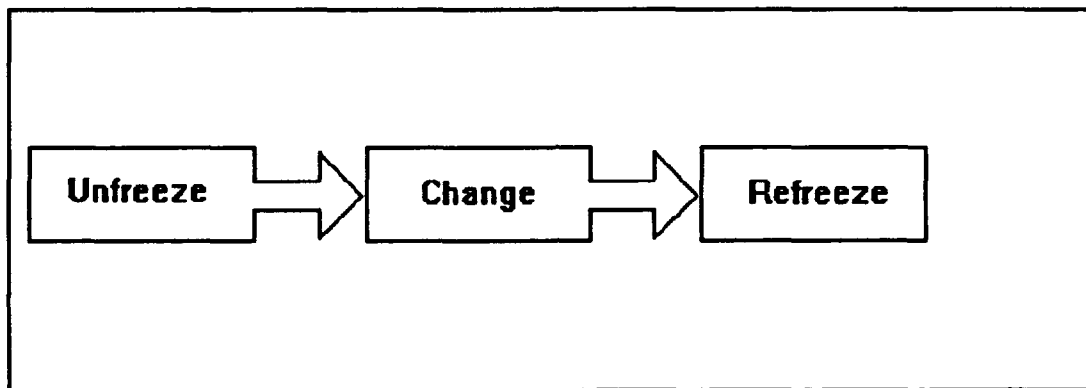
Figure 6. Lewin's Change Model

2. Transitional Change Model

a. *Three-state organization description*

The Transitional Change Model, described by Beckhard and Harris (1987), uses a three-state method of describing an organization: (1) Future State, (2) Present Situation (or state), and (3) Transition State (see Figure 7).

The future state describes the desired state of the organization -- what the managers want the organization to look like, function like, or accomplish. The present situation describes the current state of the organization. The difference between the future state and the present state indicates what is necessary for the transition, what needs to be changed (or kept the same) to reach the desired future state (Beckhard and Harris 1987; Harris 1991).
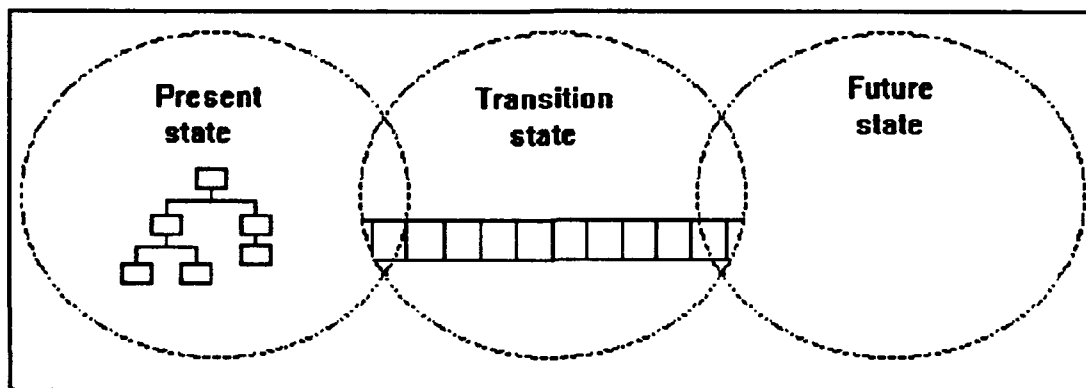
Figure 7. Transitional Model (Beckhard and Harris 1987, 29)

To analyze an organization's desired future state and present situation, Harris (one of the co-authors), recommends using the Seven-S Diagnostic Model for organizational effectiveness with the two added dimensions of environment and organization outcomes (Harris 1991). The Seven-S Model will be described, with the modifications, later in this chapter.

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In the three-phase Transitional Change Model, Harris suggests first defining the future state the organization wants to achieve in terms of the nine dimensions. Managers must determine what kind of an environment the organization expects to deal with; the kind of strategy that it wants to have in place; the structure desired; the outcomes expected, how much money it wants to make, etc.; and the desired level of performance, job satisfaction, morale expected of the people, and etc. The object is to describe everything in terms of the nine dimensions. That defines the organization the managers seek to achieve.

Next, the current situation of the organization should be analyzed. What kind of organization is it now? This analysis of the current situation is done along the same nine dimensions i.e., what is the current environment, strategy, skills, and etc. Try to create a parallel picture between the future state and the current situation. Once this analysis is finished, management has a complete picture of where the organization wants to go and where they are now.

The next questions to ask are: What is the difference in these two states? What has to be changed and what needs to be kept the same? The answers to these questions defines the work to be done.

But in using this model, Harris cautions, one should keep in mind that everything affects everything. If you change one of the nine dimension, that change affects the

other dimensions. So work may have to be done on the other dimensions to ensure a balance is maintained. To the extent these nine dimensions are compatible with each other, fit to each other, work together well, can it be said whether or not the organization is effective and will accomplish what it attempts to accomplish.

b. Three-element intervention framework

Harris uses a three-element framework of intervention (initiating change) in an organization. In this model, the object is to identify the elements that cause resistance to a change. There are three elements that can be deficient in an organization that can prevent change: (1) Information deficiency, (2) Motivation deficiency, and (3) Capability deficiency.

Often a situation occurs in which an organization decides to change its structure, technology, goals or etc., but does not seem able to change. That could constitute initial resistance to change. The reason it does not make the change needs to be overcome. What causes this situation?

(1) Information deficiency. Maybe people in the organization do not know what they are expected to do or what needs to be done. That is information deficiency. Often, if they get correct and accurate information at the right time, they do the right things.

(2) Motivation deficiency. Sometimes people all know what the problem is, they know what they are supposed to do, but they do not want to do it. They are not willing to take the right action. That is a motivation issue. With this deficiency, the managers need to change the willingness of the people to act.

(3) Capability deficiency. Sometimes there is a situation in which people know what to do, and they are willing to do it. However, they don't have the capabilities to do it, such as the skills or resources. This capability deficiency also prevents or retards change.

The issue for change intervention is to find out which element or elements cause the problem. The easiest, cheapest, and fastest element to correct is usually information. Provide people with what they need to know, the rationale and the goals, and they usually do it.

The most difficult element to correct is motivation. A lot of the motivational problems have to do with leadership practices, nature of the communication and feedback, performance appraisals, and the reward systems. Resistance to change will be discussed further in another part of this paper.

c. Change formula

Beckhard and Harris (1987) use a formula to illustrate the change process: $C = [ABD] > X$

C -- the likelihood that any change will be successful.

A -- represents the clear and agreed upon goals (people are not willing to change if they don't know where to go). This could also be seen as information.

B -- the degree to which there is dissatisfaction with the current situation (people want change). This could also be seen as motivation.

D -- the degree to which there are perceived viable first steps (things that we do now that will get the momentum going). This could be seen as related to capability.

X -- the "costs" of changing.

Change is a function of the variables A,B, and D. What does the intervention need to be about? Action depends on which of the three is deficient. If any of the three is low, the likelihood of successful change is low (Harris 1991). Also, factors A, B, and D must outweigh the perceived costs (X) for change to occur (Beckhard and Harris 1987, 98-99).

To implement the intervention and improve those elements, an organization will have to choose an appropriate intervention technology. For example, a pilot project or an experiment may help managers (and workers) understand the organization's capabilities of completing a successful change. An across the board intervention or an organization-wide confrontation meeting may help the information flow. Creating temporary management structures, involving the people, may

increase motivation and commitment (Beckhard and Harris 1987, 74).

3. Action-research Change Model

Action research refers to the way organizational development (OD) change agents go about learning what aspects of the organization need to be improved, and how the organization can be helped to make these improvements (Stoner and Freeman 1989, 376).

Organizational development is a long-range effort supported by top management to increase an organization's problem-solving and renewal processes through effective management of organizational culture. It is an approach to planned change that is more encompassing and meant to move the entire organization to a higher level of functioning while greatly improving the performance and satisfaction of organization members (Stoner and Freeman 1989, 375).

The Action-Research Model focuses on planned change as a cyclical process in which initial research about the organization provides information to guide subsequent action. Then, the results of the action are assessed to provide further information to guide further action, and so on. This iterative cycle of research and action involves considerable collaboration between organizational members and OD practitioners. It places heavy emphasis on data gathering and diagnosis prior to action planning and implementation, as well

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as careful evaluation of results after action is taken (Cummings and Huse 1989, 47). Figure 8 shows a representation of the action research cycle.

a. *Eight main steps*

There are eight main steps to the action research method to implementing planned change in an organization (Cummings and Huse 1989, 48-50):

(1) Step one -- Problem identification. This stage usually begins when a key executive in the organization, or someone with power and influence, senses that the organization has one or more problems that can not be solved internally.

(2) Step two -- Consultation with a behavioral science expert. The initial contact between the consultant or change agent and the client entails a careful assessment of each other. The client articulates his concerns. The consultant should share the normative, developmental theories with which he works to establish an open and collaborative atmosphere.

(3) Step three -- Data gathering and preliminary diagnosis. This stage is usually completed by the consultant, often in conjunction with organizational members. The four basic methods of gathering data are: interviews, process observation, questionnaires, and organizational performance data.
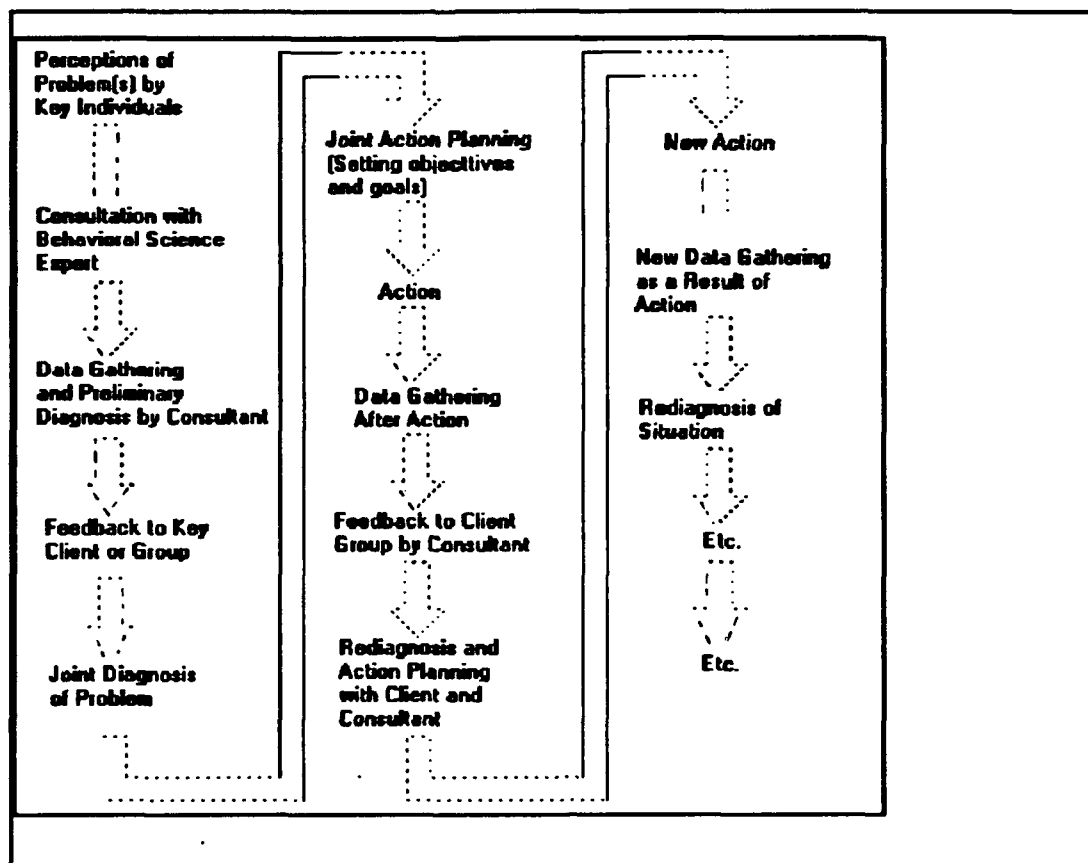
Figure 8. Action Research Model (Cummings and Huse 1989, 49)

(4) Step four -- Feedback to key client or group.
Action research is a collaborative activity, hence, the data
are fed back to the client, usually in a group or work-team
meeting. This step helps the client group, with the
assistance of the consultant, to determine the strengths and
weaknesses of the organization or the department under study.

(5) Step five -- Joint diagnosis of problem. The
client group discusses the feedback, and the focus returns to
research as the consultant and the group discuss whether this
is a problem on which the group intends to work. The

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consultant's role is to help the group to accurately interpret the data gathered. Working together, they form a diagnosis accepted by the organization.

(6) Step six -- Joint action planning. The consultant and the management team jointly agree on further actions to be taken. The specific action to be taken depends on the culture, technology, and environment of the organization; the diagnosis of the problem; and the time and expense of the intervention. This is the beginning of the "transition state" (described by Beckhard and Harris) and the "changing or moving" step (described by Lewin).

(7) Step seven -- Action. This involves the actual change from one organizational state to another. It may include installing new methods and procedures, reorganizing structures and work designs, and reinforcing new behaviors. These actions usually require a transition period to move from the present state to the desired state.

(8) Step eight -- Data gathering after action. Because action research is a cyclical process, data must also be gathered after the action has been taken in order to measure and determine the effects of the action, and to feed the results back to the organization. This, in turn, may lead to rediagnosis and new action.

4. Sociotechnical Systems Design Model

Sociotechnical System Design is a planned change model concerned with the quality of work life (QWL) (Cummings and Huse 1989, 253). QWL can be defined as a way of thinking about people, work, and organization with two elements: (1) a concern for the well-being of workers as well as for organizational effectiveness and (2) the promotion of employee participation in important work-related problems and decisions. This duality of focus evolved the sociotechnical systems (STS) theory from an extensive body of conceptual and empirical work underlying QWL applications.

a. *Social and technical parts.*

STS theory is based on two fundamental premises: (1) that an organization or work unit is a combined, social-plus-technical system and (2) that this system is open in relation to its environment (Cummings and Huse 1989, 260).

The social part is formed of the people performing the tasks and the relationships among them. The technical part consists of the tools, techniques, and methods for task performance. The two parts are independent of each other as they follow a different set of behavioral laws. The social part operates according to biological and psychosocial laws, while the technical part functions according to mechanical and physical laws.

Consequently, the two parts are related since they must act together to accomplish tasks. The technical part produces goods and services, and the social part has consequences such as job satisfaction and commitment. The key issue is how to design the relationship between the two parts so that these outcomes are both positive. Figure 9 shows the relationships.

Sociotechnical practitioners design work and organizations so that the social and technical parts work well together, producing high levels of product and sociopsychological satisfactions. This contrasts with traditional approaches to designing work, which tend to focus on the technical component and worry about fitting people in later. This often leads to mediocre performance at high social costs (Cummings and Huse 1989, 260).

b. *Environmental part.*

The environmental premise concerns the fact that systems are open to their environments. The environment provides the STS with necessary inputs of energy, raw materials, and information. The STS, in turn, provides the environment with products and services. The key issue is how to design the interface between the STS and its environment so that the system has sufficient freedom to function while exchanging effectively with the environment (Cummings and Huse 1989, 260).
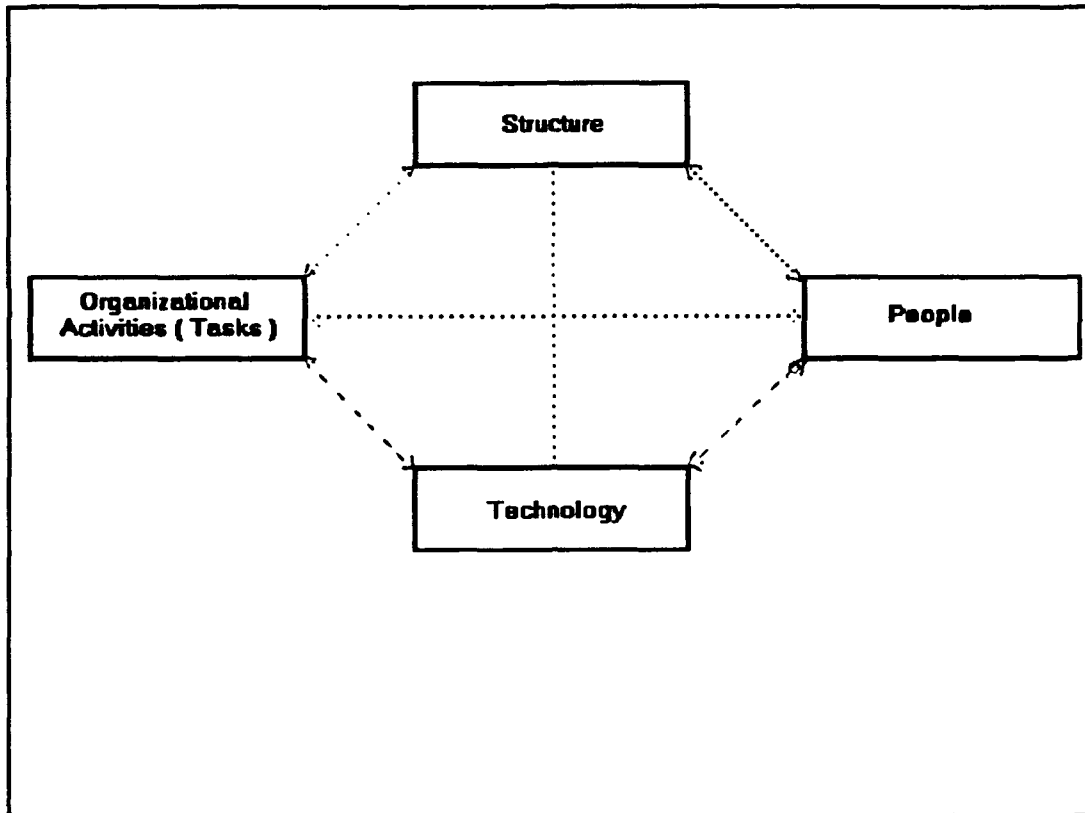
Figure 9. Sociotechnical Design Elements

c. STS guidelines.

Based on the preceding conceptual ideas, sociotechnical practitioners have devised a number of guidelines for designing work and organizations for high levels of performance and QWL (Cummings and Huse 1989, 261-262). These include:

1. Compatibility among goals, structure, and the way work is designed that includes participative activity among the various stakeholders e.g., employees, managers, engineers, and etc.

2. Minimal requirements of what needs to be done are specified; employees chose the work methods to accomplish the tasks.

3. Quick control over variance is maintained for timely responses to problems.

4. Organizational boundaries are located to facilitate the sharing of information, knowledge and learning.

5. Continual information flow to those performing work; reduce barriers/levels that slow and filter information to those who need it.

6. Workers have the power and authority to have access to equipment and materials needed.

7. Workers are multifunctional, trained in multiple skills for flexibility.

8. There is support congruence with the information and reward systems, reinforcing goals.

9. A transitional organizational structure is needed for the move from a traditional organization design to STS.10.

10. A realization that the sociotechnical system design process never ends, but continues as new things are learned.

Possibly the most popular contribution of sociotechnical systems design is the development of self-regulating work groups. This alternative provides workers with flexibility and self-control not generally found in the traditional work designs prevalent in organizations. These groups are especially suited to competitive and changing environments (Cummings and Huse 1989, 262).

C. SEVEN-S DIAGNOSTIC MODEL

The Seven-S Model was developed by Waterman, Peters, and Phillips based on discussions with consultants, academics, and business leaders. The group found that several areas (which they categorized into the seven-s's -- strategy, structure, systems, staff, skills, style, and superordinate goals) affected an organization's ability to implement new ideas or change (Waterman et al. 1980). Figure 10 shows the Seven-S model.
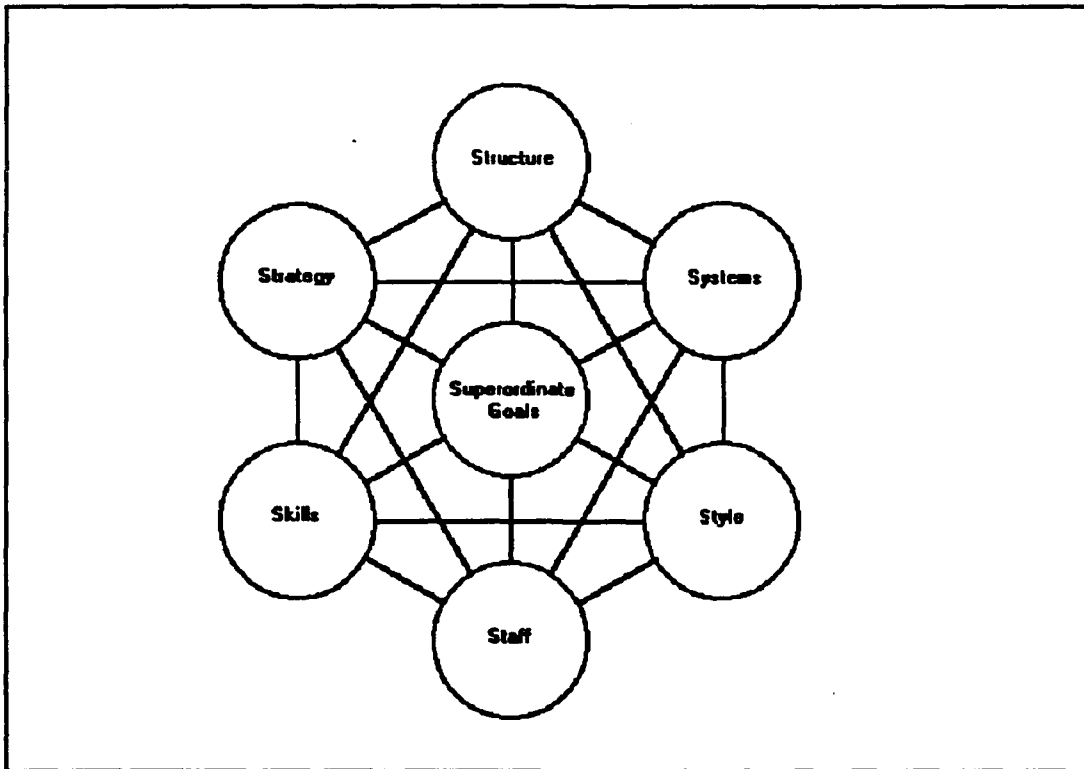
Figure 10.   Seven-S Model (Waterman, et al)

By adding Harris' two dimensions of environment and organizational outcomes, a comprehensive vehicle for

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organizational examination is available to managers. Analyzing these nine dimensions will show a relationship between them. It allows us to see what ramifications a change in one dimension has on the others. The following is an explanation of the seven plus two elements.

1. Strategy

Strategy has several meanings, depending on the context in which it is used (Mintzberg 1987). Here, strategy is the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole (Quinn 1980). Strategy refers to those actions that an organization plans in response to or anticipation of changes in its external environment -- its customers and competitors. It is this plan of action that causes it to allocate its scarce resources over time, to reach identified goals.

Major characteristics distinguishing strategy from general types of planning are: time horizon, impact, concentration of effort, pattern of decisions, and pervasiveness. Strategy is long-term and wide-ranging (Waterman et al. 1980, 311).

2. Structure

Structure refers to how the organization's activities are divided, organized, and coordinated. It encompasses organizational design -- whether it is centralized or decentralized, flexible or rigid, hierarchical or egalitarian

(flat, equality in layers). It is a characterization of both the formal organization chart and the informal structure for getting things done.

3. Staff

Staff alludes to the character and quality of the people in the organization.

4. Systems

Systems refers to all the formal and informal procedures that allow the organization to function. Some examples include reward systems, information systems, performance appraisal systems, meeting or committee systems, training systems, and communication systems (Waterman et al. 1980, 311; Stoner and Freeman 1989, 232).

5. Style

Style refers to the dominant type of leadership in the organization as well as the organization's style as a whole. Style relates to anything that distinguishes the character of the organization including distinctive values, beliefs, climates or culture. It does not refer to personality, but rather to the pattern of substantive and symbolic actions undertaken by top managers. Style communicates priorities more clearly than works alone, and may profoundly influence performance (Stoner and Freeman 1989, 232).

6. Skills

Skills refers to those things which the organization and its people do particularly well; the core competencies of key people and/or skills of the organization as a whole (Waterman et al. 1980, 313).

7. Superordinate Goals

Superordinate goals are the fundamental ideas around which an organization is built. They are its main values; the broad notions of future direction that the top management team wants to infuse throughout the organization (Waterman, et al 1980). These goals are the guiding concepts, values, and aspirations that unite an organization in some common purpose (Stoner and Freeman 1989, 232). This is the "glue" that holds the other characteristics of the organization together.

8. Environment

The first modification characteristic Harris (1991) adds to the Seven-S model is that of environment. This refers to the external world (such as government, suppliers, customers and etc.) to which the organization has to respond. The restrictions, requirements, and expectations that the environment has in relation to the organization.

9. Organizational Outcomes

The second addition is organizational outcomes. This refers to everything (such as performance, service, dedication, morale, and etc.), that defines to the

organization itself, what is a good organization (Harris 1991).

D. COMMENTS ON THE MODELS

1. Comments on the Change Models

Lewin's is one of the first organizational change models developed. As such, it provides a general framework for understanding change in organizations. The follow-on models elaborate the change process more precisely.

The basic strength of the Transitional Change Model is that it addresses the three most important issues which prevent the implementation of a successful change: the need for clear goals, dissatisfaction with the current situation, and the need for viable first steps. If a manager can overcome these barriers, he or she will have a greater degree of success in "unfreezing" the old, instituting the change and "refreezing" the organization to the new form (Harris 1991).

The model may, however, over-simplify the elements in resistance to changes. The model also does not recommend any method of dealing with the loss of privileges or power of some people in the current situation. Some resistance may come as a result of this shortcoming. Also, some people identify themselves with the current situation, but the model doesn't seem to adequately help them to identify with the new situation.

Using the eight steps, the Action Research Model places strong emphasis on developing specific on-site interventions in collaboration with management, after a thorough joint diagnosis. Action research goes beyond just solving a specific organizational problem to helping managers gain the skills and knowledge to solve future problems (Cummings and Huse 1989, 51).

Sociotechnical Systems Design recognizes the inter-relationship between the organization's technical or work side and its social or human side. Also, the organization must function as an open system, interacting with its environment. Incorporating these aspects with the design guidelines, can result in an organization with robust QWL characteristics.

2. Comments on the Diagnostic Model

The main advantages of using the modified Seven-S model is its simplicity and comprehensiveness. The seven dimensions are easy to visualize and understand; they quantify the organization's internal environment. Addition of the two dimensions of environment and organizational outcomes, provide a framework for analyzing the external environment and furnishes a process for measuring the outputs of the organization.

While being comprehensive, a drawback of the modified Seven-S model may be that it is too simple in trying to address a complex organization. It may not be detailed

enough, and may require further breakdown for greater analysis of the organization.

Also, it may not fully address the social factors in the organization which are directly related to the people in the organization: their characteristics (individual and small groups), their patterns and processes of interaction, and their features as larger social groups.

This model seems to almost assume organizations are like machines, if you fix one part, which is not functioning properly, and align it with the rest, the problem is solved. However, if it is remembered that there is this social aspect to organizations, the weakness can be mitigated.

Any good diagnostic model currently in use is intended to convey the same ideas. Organizations are more than just structure, and all of the elements that make up an organization must be in balance with each other for the organization to function optimally. The effective organization is one that has blended its structure, management practices, rewards, and people into a package that in turn fits with its strategy. However, strategies change and when they do, the organization must change (Galbraith 1991, 315).

E. CHAPTER CONCLUSION

This chapter described some selected models for organizational change and a model with which to diagnose organizations. A diagnosis can be an invaluable instrument to

identify an organization's strengths and weaknesses, its opportunities and threats, and assist in developing the future state that management desires.

A change model is beneficial in that it reduces the complexities of organizational change down to easily grasped concepts and components. An individual model may not contain all the elements a specific organization may need to accomplish the transition most effectively. However, several models can be studied so the most useful attributes of each may be merged to form an effective model for implementing a desired change.

There are several approaches and ideas that can focus on the needs of a particular organization. As such, the models reviewed were used to develop a framework in which to recommend change approaches. The next chapter combines attributes from several change models with good management practices and the modified Seven-S diagnostic model to form a functional guide for implementing TQM in the Coast Guard Reserve.

IV. SUGGESTED TQM IMPLEMENTATION GUIDE

A. CHAPTER INTRODUCTION

The United States Coast Guard has evolved from its single mission origin on August 4, 1790 as the Revenue-Marine to its present configuration. Many tasks were acquired since 1790, which resulted from, among other events, merger with the Life-Saving Service in 1912 (forming the Coast Guard) and the addition of the Lighthouse Service in 1939 (Bloomfield 1966). This long-term evolution resulted in the Coast Guard becoming a multidivisional organization.

The multidivisional type of organization operates almost as a collection of smaller, semi-autonomous service divisions that take responsibility for short-term operating decisions (e.g., in the Coast Guard the Office of Marine Safety, the Office of Readiness and Reserve, and etc.). Strategic decisions, with their inherent longer time horizons, remain the responsibility of the central headquarters office (Stoner and Freeman 1989, 228). The most recent, major strategic decision Coast Guard Headquarters has made is to institute a Total Quality Management philosophy for operating the service.

Once a desired change has been identified, such as TQM, it must be incorporated into the daily operations of the

organization. It must be translated into the appropriate organizational tactical plans, programs, and budgets.

This chapter will deal with the tactical plans of the implementation process for the Reserve component of the Coast Guard. Section B outlines a suggested implementation process with its various steps. Sections C through I describe, in general, each step in the process.

B. IMPLEMENTATION PROCESS OVERVIEW

1. Define the Future State

The first step in initiating a major change in the Coast Guard Reserve should be to define the way management wants the organization to look, function, and operate. To do this phase adequately, the desired organization should be thoroughly described. The modified Seven-S model can be used as a guide for this step.

2. Describe the Current State

The second step is to delineate the organization as it is now, again using the modified Seven-S model.

3. Compare Future and Current States

The third step is to compare and contrast the results of the first two steps to ascertain which aspects of the organization are already like those desired, and those facets which are dissimilar.

4. Develop Plan

The fourth step is to devise a plan to accomplish the changes identified in step three, without changing the organization's current characteristics that are still desired.

5. Anticipate Resistance

The fifth step is to anticipate resistance to change, and plan for countering that resistance.

6. Establish Controls

The sixth step is to ensure adequate controls are in place to accomplish the change, and to prevent a return to the previous situation.

7. Develop Implementation Schedule

The seventh step is to develop a schedule or time-table for the implementation process.

C. DEFINING THE FUTURE STATE

1. Strategy

How do the Coast Guard Reserve managers wish the organization to respond to changes in its external environment? Do they want an organization that anticipates future trends, and is responsive to them in its planning processes? Do they want one that carefully chooses its long range goals, and devises plans to achieve them? An organization in which the policies and action sequences have been integrated in to a cohesive whole to accomplish its major goals?

Or are the managers content to be reactionary to the events around them? Do they want to continue with just status quo operations until something of magnitude occurs to jolt them into action?

From the new requirement to use the Total Quality Management way of doing business, it is obvious Coast Guard management wants the service to perform as the former, rather than the latter. They desire the Coast Guard to be pro-active, responsive to the total environment, and efficient as well as effective. This requirement pertains to the Coast Guard Reserve as well.

The kinds of strategy elements desirable for the future Reserve organization, to provide an affirmative basis for creating and maintaining efficiency and effectiveness are: (1) setting and communicating to all members clear, written overall mission and goals; (2) fostering cooperation among all organizational elements toward those goals; (3) empowering managers and workers (delegation of authority); (3) flexibility (thinking outside of the box or current paradigm); (4) brainstorming (allowing new ideas to emerge); (5) openness of communication to be customer oriented both internally and externally to the organization; (6) filter and/or direct activities to minimize "less desirable" ideas or projects that could have harmful after effects to the whole organization; and (7) support continuing education or competency in knowledge base.

2. Structure

The ideal Reserve organization is "goal or mission driven" to excel at providing their product or service. Within this scope, the organization encourages communication and cooperation between individuals, teams, or departments. The organization should be hierarchical enough to maintain focus when necessary, but flexible enough to allow freedom of research and knowledge sharing.

Given the pace of change in today's environment, more and more organizations are relying on informal organizational structures to get things done (Stoner and Freeman, 1989). This informal structure may be growing out of the personal and group needs of an organization's members.

The kinds of structure (consistent with both formal and informal) elements that provide the affirmative basis for organizational change and flexibility are: (1) a structure that permits autonomy of actions; (2) a positive environment that is supportive -- not autocratic; (3) decentralized; (4) good communication networks -- both internally and with the external environment; and (5) not rigid with its explicit "rules and regulations", but allows for interpretive "intent."

3. Staff

Successful organizations view people as resources to be managed aggressively -- that is, to be nurtured, developed, guarded, and allocated (Stoner and Freeman 1989, 232). The

kinds of staff qualities the Coast Guard Reserve desires
should include: (1)   a strongly held belief in the
organization's mission; (2) a significant commitment to the
organization   and   its   goals;   (3)   self-motivated   and
self-starters; (3) high honesty and strong integrity; (4)
eagerness to learn new ideas and techniques; (5) excited by
challenge; (6) good communicators; (7) people who work well
with others, teamwork; and (8) competent.

The people who are receptive to change are diverse in
terms of skills and specialties, but they all usually have two
things in common: competence and persistence.   They are
self-starting, team-oriented members sharing a common vision,
excited by and driven toward excellence in pursuit of the
organization's mission.

4. Systems

All the systems of the Reserve organization should be
analyzed to determine how management would like them to
function.   As an example, organizational productivity is
enhanced through the collective systems of communications,
reward and recognition, and performance appraisal. This is
done   specifically   through   open   candor,   constructive
critiquing, and rewards directed towards teamwork as well as
individual effort.

The kinds of systems (consistent with both formal and
informal) desired by the organization to support the foregoing

elements are: (1) good communication and information networks, vertical and horizontal, internal and external; (2) timely reward and recognition of improvements; (3) failure or "less-than-optimal" ideas are not punished, rather they are used as learning experiences; (4) a performance appraisal system (in congruence with reward and recognition systems) that will enhance career and promotion opportunities; and (5) use of personnel forums.

5. Style

The most successful leaders have learned that instead of being autocratic, they need to listen and empathize with members of the organization. They should be the visionary who guides decisions that will provide the best overall benefit to the organization's goals. All major decisions and changes are handled through face-to-face discussion, whenever possible, in order to build genuine commitment and honest feedback of ideas.

Hersey and Blanchard's (1982) Situational Leadership theory espouses that the most effective leadership varies with the "maturity" of subordinates. They define maturity not as age or emotional stability but as a desire for achievement, willingness to accept responsibility, and task-related ability and experience. Hersey and Blanchard believe that the relationship between a leader and subordinate moves through four phases -- a kind of life cycle -- as subordinates develop

and learn (mature). The leadership style varies with each phase, going from high direction with low relationship to that of fully delegated members (Stoner and Freeman 1989, 470-472).

Bennis and Nanus (1985) take this a couple of steps further. They look at what they term "transformative" leadership -- the capacity to translate intention into reality and sustain it. Bennis and Nanus go on to report that the essential thing in organizational leadership is that the leader's style "pulls" rather than "pushes" people. A pull style of influence works by attracting and energizing people to an exciting vision of the future. They discovered that the effective leader's style seemed able to create a vision that gave workers the feeling of being at the active centers of the social order -- a part of the "family", a "fun" place to be.

The foregoing outlines the ideal organization's style: leaders who listen and empathize, are visionary, able to adjust their style to the maturity of the subordinate, and able to energize their workers. The Coast Guard Reserve should incorporate this view of the future state of organization style, which is in agreement with TQM philosophy.

6. **Skills**

The ideal Reserve organization would encourage the skills development of its members to include leadership, interpersonal relationships, and sufficient political and psychological "tools" to improve effectiveness and efficiency.

These are in addition to the technical skills the organization members must acquire.

As an example, the kinds of desired skill elements of organizational leaders are: (1) leaders who know themselves -- feel competent and comfortable with what they are, who they are, and who they and others think they are; (2) good communicators; (3) magnanimous, they share their power by empowering workers; (4) celebrate diversity; (5) learn from past experience and mistakes to grow; (6) stewardship -- taking care of their people, removing interferences, providing rewards in an open and fair manner; (7) political skills; and (8) interpersonal skills.

Bennis and Nanus (1985), talked about four areas of competency or human handling skills: attention through vision; meaning through communication; trust through positioning; and the deployment of self through positive self-regard. Their book offers a blueprint to the successful organization -- a self-actualized, learning organization, to create a new culture.

7. Superordinate Goals

The Coast Guard's (including the Reserve) desired organization core values have been declared in the Commandant's Vision Statement. Activities which do not support the advancement of those values should be scrutinized

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closely for relevancy. They should be abandoned or modified if found inconsistent with those core values.

8. Environment

An analysis of the future state of the environment is made by projecting Reserve budgets and program emphasis. This must be a continual process of reviewing the political, economic, and social climates in which the Coast Guard Reserve functions.

9. Organizational Outcomes

The Coast Guard Reserve must identify what entails being a good organization for itself and each sub-unit. When this criteria is determined, each element will then have a model toward which to endeavor.

D. DEFINING THE CURRENT SITUATION

This step again uses the modified Seven-S diagnostic model. The purpose of this type of examination is to categorize how the Coast Guard Reserve functions now, in relation to the nine areas.

Answers to the following questions will furnish insight into the current situation: Does the Coast Guard Reserve integrate its major goals, policies, and action sequences into a cohesive whole? Is the structure flexible enough to respond to changes efficiently, as well as effectively? Is the staff inculcated with competence and persistence, self-starting, highly motivated, and team oriented? Do the systems have goal

congruence; or does the evaluation system emphasize individual performance rather than team work? Is the management style autocratic or does it embrace participative decision-making? Are the skills of the personnel used sufficiently or is most work usually "reinventing the wheel"? Do all managers know what are the guiding concepts, values, and goals of the organization? Do all managers know what the organization considers is a good organization?

No detailed explanation will be presented as every divisional element, whether the entire Coast Guard Reserve or a sub-unit of the organization, must analyze each area individually as it pertains to them. However, one example may prove helpful. When reviewing the personnel skills in the present state or current situation, look for the strength and weaknesses of the people.

In the Reserve program, many drilling reservists already have varying degrees of TQM expertise acquired in their civilian employment because of the nation-wide emphasis on quality. These employees can, in general, more quickly adapt to the Coast Guard TQM philosophy as they will usually require less background training. Many can be employed as trainers for others, after only a brief period of personal instruction.

E. COMPARISON OF THE FUTURE STATE AND CURRENT SITUATION

This step uncovers what work is needed to reach the desired state. A comparison between the desired future state

of the Coast Guard Reserve and how it is now, in relation to the nine diagnostic areas, can be easily completed. Contrasting the results will establish what is necessary to change, and what needs to be kept the same.

To continue the example of personnel skills, identify individuals in the Reserve who already have the political and psychological skills desired. These can include teachers, civilian managers, social workers, and similar professionals. These people may presently have the background education or training in the communication and interpersonal skills needed to help the Reserve move toward being a quality organization.

F. IMPLEMENTATION PLAN

The elements and ideas for this section come from a plethora of sources. Some of the most prominent are: The Coast Guard Total Quality Management Implementation Plan, Total Quality Management: A Guide to Implementation (Mansir and Schacht 1989, August); How to Get Started Implementing Total Quality Management (Federal Total Quality Management Handbook 1991, June); Introduction to Total Quality Management in the Federal Government (Federal Total Quality Management Handbook 1991, May); and Quality Improvement Prototype (Sacramento Air Logistics Center 1991 and 1926th Communications-Computer Systems Group 1991).

Many other ideas come out of various courses the researcher has taken and lectures attended at the Naval

Postgraduate School in Monterey, CA, discussions with professors and other students, the Coast Guard TQM Facilitator Training, and the Navy's Senior Leaders Seminar on Total Quality Management/Leadership (TQM/L).

1. Demonstrate Commitment

Peter Block says in his book "The Empowered Manager" that the act of leadership is fundamentally the act of articulating a vision and acting in pursuit of that mission (Block 1987, 110). The Coast Guard Commandant has articulated a vision, and is using TQM in pursuit of that vision.

Nothing survives long without management support. Reserve management must show strong commitment to the new philosophy for it to succeed. This commitment can be demonstrated by participating in TQM training, understanding and using the vocabulary and tools in their own work, and creating a work environment in which their subordinates do the same.

2. Build Awareness

TQM involves learning a new language. Also, many common words now take on a different meaning. Reserve managers should build their personal understanding of TQM by attending training, reading books and articles, and viewing videos on the subject. Also, subordinates must be provided with opportunities for training, be encouraged to pursue

additional knowledge, and be included in activities as outlined in the TQM training.

3. Communications

Build a network of vertical and horizontal information sharing. Get people talking to each other to overcome barriers, work through problems, and provide encouragement and support in the TQM implementation process.

This information sharing should include regular communications on successes and difficulties encountered with TQM implementation and with TQM itself. Others may have had the same situations arise, and already solved them or could furnish a different viewpoint.

A foundation of mutual trust and respect must be in place for this unconstrained exchange of information. Personnel at all levels must feel free of detrimental evaluation implications to enthusiastically report false-starts, omissions, and errors in their attempts at TQM.

4. Common Direction

Reserve management should establish a vision of the future state at each level of the organization (HQ, District, Reserve unit). Develop meaningful short-, mid-, and long-range goals to reach that vision. Monitor the progress using the controls described later in this chapter. In addition, ensure evaluations reward activity congruent with the goals.

5. Early Successes

Widely publicize early successes. These have to be significant enough to make a difference, but small enough to be easily controlled as a first step. Start at the top of the organization which will clearly show top management commitment.

As an example, after flowcharting several processes, a Reserve District may find Reserve Group staffs do not add appreciable value to these processes. This link in the chain may be deleted, streamlining the operations and possibly freeing members of the Group staff for more constructive work.

6. Training and Education

Providing adequate time and training resources for training all personnel is another signal of Reserve management commitment to TQM. Education and training help accelerate the TQM movement by bringing everyone to a basic level of understanding.

To facilitate successful adoption of TQM by Reserve units, training should be provided in the following sequence: (1) Commanding Officer and other senior managers, to demonstrate TQM's potential and ensure their commitment; (2) TQM Coordinator, to plan future training and design the TQM Overlay at the Reserve unit -- including QAT's; and (3) TQM Facilitator, who will conduct much of the training for unit members and assist QAT activities.

Facilitator skills need to be exercised as soon as possible after completing training. Hence, it is advantageous to have the Reserve unit TQM Overlay in place before training the facilitator. Sending a trained facilitator to a unit that is not ready to begin using TQM is frustrating for the facilitator, and the new skills soon begin to deteriorate.

7. Improve Processes

Continually improve the foregoing methods using the skills of TQM. Flowchart every process to eliminate unnecessary or unproductive operations. Find problem areas and bottlenecks. Add or discard steps as necessary for individual units. Take advantage of emergent strategies i.e., good ideas that are discovered during the implementation process (Mintzberg 1991, 14). Communicate them to the rest of the Reserve. Consider using the action-research technique to enhance the TQM method to improve the organization.

G. RESISTANCE TO CHANGE

There is an abundance of sources of resistance to change. This section will outline a representative few of the most common, and offer countermeasures to mitigate many of them. In addition, the appendix recounts several specific barriers the Coast Guard and the Navy management perceive as being significant in their respective services. Research (Human Resource Management News, 30 September 1991) and discussions at TQM training courses indicate the greatest resistance

originates with management. Most organizations experience enthusiastic support from non-managers.

1. Sources of Resistance to Change

a. Uncertainty

People often resist change because they are worried about how their work and lives will be affected by the proposed change (Stoner and Freeman 1989, 368). Will they lose benefits? Will they have to give up existing power, have to share power or even get power? Will they lose their job entirely? Managers who have helped to formulate strategies, may resist strategic reorientations in order to retain power and status. They may try to persuade themselves and others that their strategies are appropriate (Starbuck, Greve, and Hedberg 1991, 791).

"Fear of the unknown" often causes anxiety in people, resulting in resistance to proposed changes. They are usually concerned because they may not possess the new skills required to carry out the new tasks (Tichy 1983, 344).

b. Reward System

Often, the reward and evaluation systems still emphasize individual instead of team performance, and focus on production instead of quality. This situation cannot help but to slow the TQM change process.

c. Work-loads

Managers repeatedly feel they have too much to do now without adding TQM activities.

d. Current Paradigm

Managers and subordinates frequently believe they already produce quality work. The current system has worked well for many people, and for a long time. They feel there is no need to change their current paradigm.

e. Organization Predictability

Organizations are generally structured to ensure predictability and reduce uncertainty. This sets in motion organizational inertia and structural habit (Tichy 1983, 345).

f. Resource Limitations

The organization may resist change due to resource limitation. Scarce resources result in political bargaining over who gets what share of the pie. It can also result in impasses and overall organizational resistance to change (Tichy 1983, 347)

g. Threats to Powerful Coalitions

This resistance is an expansion of threats to individual power noted in the sub-section on uncertainty. Using TQM may alter the strategic contingencies in some parts of the Reserve, making a new group more important to the future success of the organization. The old dominant

coalition may resist change due to this threat of a power redistribution (Tichy 1983, 346).

2. Overcoming Resistance to Change

Resistance to change can be exhibited at many levels as noted in the section on sources. These levels include: the individual level, the organizational level, and the organization's culture, which may reinforce the status quo (Cummings and Huse 1989, 111). The following are representative actions that can be used to diminish resistance on several levels.

a. *Empathy and support*

Initiators of change try to understand how people are experiencing the change. Those guiding the change process in the Reserve program should be receptive to concerns of the people involved. This requires suspending one's own judgement and actively listening to the other's perspective. This active listening process will facilitate a more open relationship with problem people. Also, it will help with discovering solutions acceptable to both parties (Cummings and Huse 1989, 112).

b. *Communication*

Effective communications about changes and their likely consequences can reduce speculation and can allay unfounded fears. It can help managers realistically prepare for change (Cummings and Huse 1989, 112). Reserve managers

should prepare a planned campaign to discuss the change to TQM. Encourage members to ask questions, share concerns, and offer input. Regularly conduct quality review meetings to update everyone on the change progress (Human Resource Management News, 30 September 1991).

c. Participation and involvement

Involve organizational members directly in implementing TQM in their subdivisions. Members can provide a diversity of ideas and suggestions that can contribute the success of the change process. Get feedback with attitude surveys and periodic employee focus groups to stay in-tune with people's feelings during the transition (Cummings and Huse 1989, 112).

d. Reward System

Build quality achievement into evaluations (Human Resource Management News, 30 September 1991). Reserve management should insist on being involved with revising the personnel evaluation forms. If no action has been started on revising the system organization-wide, exhort the service to do it. People's performance is strongly influenced by the scale on which they are measured.

e. Culture

The culture of an organization is that set of artifacts, beliefs, values, norms, and ground rules that defines and significantly influences how the organization

operates (Beckhard and Harris 1987, 7). Identify those elements of the Coast Guard Reserve culture that need to be maintained, those to eliminate, and the ones to introduce. Then select the key personnel with whom to form links to accomplish the changes in values and norms. One excellent method follows.

f. Role Models

If a key group in the Reserve begins to operate with a different culture (TQM values), a model is created for others in the organization to follow (Tichy 1983, 355).

g. Replace Top Managers

As a last resort, it may be necessary to replace top managers. Indiscriminate replacement of entire groups of top managers may be required to bring an organization out of a resistance posture.

Replacement of one or two top managers at a time may not be enough. When top managers are replaced gradually, the newcomers are injected into ongoing, cohesive groups of veterans, and the newcomers often exert little influence on these groups, whereas the groups can exert much influence on the newcomers (Starbuck, Greve, and Hedberg 1991, 791).

Cohesive groups can also impede an incumbent manager's own efforts to adopt change. The pressure of the group's expectations of behavior norms can often nullify

change attempts. In these cases, it may become necessary to break up the group, as well as replace top management.

H. ESTABLISH CONTROL MEASURES

Control is the process through which managers assure that actual activities conform to planned activities (Stoner and Freeman 1989, 556). This definition suggests control is intended to accomplish and that it entails action. Deming says, "you can't improve what you don't measure."

There are many factors that will make control necessary when implementing TQM in the Coast Guard Reserve. The organization is large and complex, it is geographically dispersed, managers or their subordinates make mistakes, and the delegation of authority all require some degree of control.

Implementing a large-scale, organization-wide change requires controls to ensure satisfactory progress is being made. Through the control function, managers detect variances that affect the organization. They can then move to manage effectively (i.e., control) the resulting threats or opportunities to the process (Stoner and Freeman 1989, 556-560).

Mockler (1972) divides control in to four steps: (1) Establish standards and methods for measuring performance; (2) Measure the performance; (3) Determine whether performance matches the standard; and (4) Take corrective action. The

control process is designed to guide individual and group behaviors in accordance with organizational goals and standards. The concept suggests managers must see the process through to its conclusion, or they are merely monitoring performance rather than exercising control.

Excessive controls can be harmful to the organization and its employees. They can retard motivation, inhibit creativity, and damage performance. Inadequate control wastes resources, makes it more difficult to attain goals, and can harm subordinates if some managers, not subject to adequate control, supervise too closely. Yet control is necessary in organizations to improve processes and help achieve goals.

In establishing controls, the task for Reserve managers is to find the proper balance between appropriate organizational control and individual freedom. The empowerment of employees and use of TQM philosophy and techniques will help in determining that balance. Using the control methods described by Stoner and Freeman (1989, 361-364) will facilitate management of the TQM implementation process.

1. Pre-action controls

These controls help ensure that before an action is undertaken the necessary human, material, and financial resources have been budgeted. This involves coordination and scheduling of resources at the times and in the types, quality, quantities, and locations needed.

2. Steering controls

Steering controls are designed to detect deviations from some standard or goal, and to allow corrections to be made before a particular sequence of actions is completed. They also allow managers to take advantage of unexpected opportunities so resources can be shifted to areas where they will do the most good.

The controls are most effective when the manager can obtain timely and accurate information about changes in the environment or about progress toward the desired goal. Hence, a rapid communication procedure should be built into the implementation process for the Reserve Program.

3. Screening controls

These controls provide a process in which specific aspects of a procedure must be approved or specific conditions met before operations may continue. Screening controls provide a means for taking corrective action while a program is in progress.

Screening controls can provide a safety-net for the implementation process. They should not be designed to unduly hamper innovation, but constructed to enhance communications vertically.

4. Post-action controls

Post-action controls measure the results of a completed action. The causes of any deviation from the plan

or standard are determined and the findings applied to similar future activities. These controls should also be used to collect information on the implementation activities, successful ones and those that do not prove fruitful.

The significance of these four types of control is enhanced by timeliness and accuracy. Timeliness is important because the sooner deviations are discovered, the sooner corrective action can be taken. Accuracy is critical since the corrective action is based on information obtained from the post-action control measurements.

I. IMPLEMENTATION SCHEDULE

The current schedule is to perform quality training in the field units for six to eighteen months. The purpose is to achieve a trained critical mass in Reserve management. It will include quality indoctrination, TQM Overlay organization instruction, TQM tools familiarization, and coordinator and facilitator training (Bromund 1991).

Depending on the knowledge base in different geographical areas, Quality Management Boards will be established in 12 to 18 months after training begins. Quality Action Teams will begin functioning soon afterward. It is expected that, as the Reserve organization matures in the quality philosophy, natural work groups will be using TQM techniques for problem-solving and decision-making in approximately 24 months after training begins (Bromund 1991).

A schedule for implementing TQM or any major change in an organization should include the following:

1. Announcement

Develop "political" support from influential members of the organization before promulgating a change. Even in an autocratic organization, this is necessary for a smoother transition. Starting with this step assumes support for the change to TQM has already been secured from high-level (influential?) members.

Announcement of a new philosophy, direction or program should be done from the top-down. Every person in the organization should be informed about the change: what the change is, why the organization is doing it, what the expected benefits are, everyone's role in the process and the impact on them, and how the organization will go about implementing the change.

2. Training

Training should be provided top-down in three phases: Top management, middle management, and workers. Training top management first must be done to ensure their commitment, identify and address high-level resistant areas and personnel, and to demonstrate to the other levels the commitment of the organization to the change.

3. Implementation

The first part of implementing the change should be done, if possible, in a highly receptive part of the organization with enthusiastic participants. A pilot-project could be developed to "test the waters" for problems and successes with instituting the change. This operation could be started after concentrated training in that part of the organization.

Next, analyze the activity in the pilot-project. Make adjustments and implement the change in the entire organization.

4. Data gathering

Gather data from all parts of the organization on the progress of the change. Use interviews, process observation, questionnaires, and organizational performance data to collect this information.

5. Assessment or diagnosis

Appraise the progress of the change by analyzing the data gathered in the preceding step. Determine the strength and weakness of the actions taken to date. Identify the threats to be countered and the opportunities that can be exploited. Use TQM tools, and as necessary charter QAT's, to address the problem situations.

6. Adjustment

Execute the resolutions delineated in the assessment step. Continue to monitor the process, gather data, rediagnose and institute new action; continually improve the process.

J. CHAPTER CONCLUSION

This chapter offered procedures to effect a change in the Coast Guard Reserve, with emphasis on TQM. The process was intentionally general in that it did not presume to dictate specific actions at any level of the Reserve Program. It did, however, suggest needed and useful planning and action steps for initiating planned change.

This guide is not meant to present an exhaustive strategy. There are, assuredly, steps or techniques not discussed. Also, each phase or point included could be expanded considerably. The intent is to provide a reasonable framework, containing many recommendations from several sources, with which the Reserve program managers can form a tailored plan for the entire organization, including individual districts and units.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The review of the literature revealed that most organizational diagnostic models have common attributes such as categorizing similar areas to diagnose, e.g., structure, style, and environment. The change models indicated that everything affects everything else i.e., when change occurs in one area it affects other areas. Some models concentrate on planned organizational change internally, while others are concerned with adaption of the organization to the external environment (Goodman and Associates 1982).

Also, the Coast Guard's TQM method incorporates many of the ideas of several quality advocates. This method, it is assumed, uses the best or most workable aspects of the current quality ideas.

What the researcher has discovered from reading and reviewing the materials and attending the Navy and Coast Guard training on TQM/L is that no one method stands alone as the quality panacea. The Navy and Coast Guard methods touch the surface of the tools and techniques. The Navy's statistical process control emphasis is just the beginning of the quality path. The Coast Guard's TQM method may not be complete either, however, it provides an excellent process for decision

making and problem solving. With this foundation, the Coast Guard and Coast Guard Reserve can continue to improve its management abilities and service performance through quality.

In addition, there is a myriad of excellent quality-related material available. Books such as "Kaizen", "Team Building", and "Memory Jogger Plus" are three examples. The evolution of quality organizations will continue. The next progression may be toward learning organizations as discussed by Peter Senge in his book "The Fifth Discipline."

Organizations need a particular mind-set for managing change or innovation: one that emphasizes process over specific content, recognizes organization change as a unit-by-unit learning process rather than a series of programs, and acknowledges the payoffs that result from persistence over a long period of time as opposed to quick fixes (Beer, Eisenstat, Spector, 1990).

Their ideas for "organizational revitalization" has a two front assault to win over change and innovation. Beer, Eisenstat, and Spector say that there must be a "grass-roots" acceptance and consensus building coupled with high levels of top management commitment. They think about this challenge in terms of three interrelated factors required: coordination or teamwork; competence; and commitment.

In the implementation phase of the Sociotechnical Systems Design model, all the analysis is collated into recommendations for joint optimization. To arrive at this

level, we need to backtrack and set up what Beckhard and Harris call the diagonal slice task force group. The diagonal slice group provides representative and continuing input from many different levels, cultures, and functions within the organization (Beckhard and Harris 1987, 78).

The Beer, Eisenstat, and Spector idea that says for all members to "buy in" toward change, each member group needs to be represented and actually go through the diagnostic analysis of the situation. Their findings will ultimately result in the direction to be recommended to upper management.

B. THESIS RESEARCH QUESTIONS REVISITED

The primary research question is "How might TQM be successfully implemented in the U.S. Coast Guard Reserve?" The procedure outlined in Chapter IV, Section B provides one answer to this question. There is, of course, no one right intervention strategy or change implementation method. Each organization, and frequently each organizational sub-unit, requires techniques distinctive to its own situation.

A subsidiary research question is "What is Coast Guard Total Quality Management?" The answer to this question is found in Chapter II, Section C, and concentrated on the tools of Coast Guard TQM. However, it should not be inferred from the detailed explanation of the tools that the quality philosophy part of TQM is of less importance.

Another subsidiary research question is "What is planned change?" The change models discussed in Chapter III, with the modified Seven-S Diagnostic Model furnished an overview of planned change. The models are a representative group of the work in the organizational change domain.

The third and fourth subsidiary research questions are "What are barriers/obstacles to implementing organizational change?" and "How might these obstacles be overcome?" The implementation guide in Chapter IV, Section G describes several of these barriers, and the appendix lists many of the specific perceived problems voiced by management personnel from the Navy and the Coast Guard. Section G also describes some methods to surmount the barriers.

Every organization and each level of an organization has its own sources of resistance to change. Also, the magnitude of this resistance fluctuates over time. The most effective means to reduce resistance seems to be communications. Communicate openly, honestly, and regularly with those impacted by an organizational change and anxiety is abated.

The final subsidiary question is "What is an effective guide for implementing change?" Chapter IV, Section B furnished a general guide for implementing change, with elements drawn from various literature sources. The suggested guide provides a format which the Coast Guard Reserve can use to build its own, unit-specific implementation plans.

C. GENERAL RECOMMENDATIONS

The suggestions included in this section were developed when the researcher attended the Coast Guard Facilitator Training course and the Navy's Senior Leaders TQM/L Seminar. These few recommendations are general in nature. However, they may give the reader other ideas on which to elaborate.

1. Flowchart every process. This will help identify bottlenecks, eliminate steps, and aid in streamlining everywhere possible. Flowchart the implementation process to identify where each level of the organization is at a given time. Flowchart the organization's SOP's. Then flowchart how the procedures are actually done. Often, the two are not alike. Corrective action can then be done, whether adjusting the actual to the SOP or vice versa.

2. Train "Master Trainers" in TQM for each Reserve district. This individual or group of reservists would train the Reserve unit personnel who will then train unit members. Train Reserve management in statistical control techniques: data gathering, compiling, and especially interpreting. Begin TQM training (or education) immediately in basic schools e.g., REBI and ROCI. Insert TQM training and discussion in every two-week training course to encourage early inter-relationships among supplier-customer groups. Include TQM training with the Reserve Annual Training. Begin training on giving presentations, team building, and group dynamics.

3. Educate everyone on the responsibilities and duties of the Executive Steering Committee (ESC), Quality Management Board (QMB), TQM Coordinator, TQM Facilitator, Quality Action Team (QAT), and the QAT Team Leader. Train and refresher train the ESC, QMB, Coordinators, Facilitators, QAT members, and all other personnel.

4. Incorporate TQM (teams, process improvement, etc.) into evaluation forms, the reward system, and process measures. Immediately change the evaluation forms to add team appraisals instead of stressing individual performance.

5. Provide each Reserve unit with a library of recommended quality literature. There are several excellent books on the recommended list. The federal government also provides many books, booklets and pamphlets on quality at little or no cost.

6. Educate everyone to understand TQM in not a voting process. The discussion and ideas come while improving a process, not during an operation. For example, discuss how to perform the rescue of a man-overboard. When its time to actually do a rescue, do it, using the method discussed. Then improve the process afterward.

7. Continually review all processes for improvement; remember, its no longer "If it ain't broke, don't fix it." The phrase now is "If it ain't broke, improve it!"

APPENDIX

PERCEIVED BARRIERS TO TQM IMPLEMENTATION

A. COAST GUARD

Dozens of anticipated barriers to TQM have been voiced at various ODI training courses. The top five perceived impediments to TQM working in the Coast Guard are listed below.

1. Perception that senior officers really aren't participating in TQM.

2. Who gets the savings from TQM? The concern here is that when a unit improves processes and saves money, their budget is reduced.

3. Our Coast Guard culture -- the customary way of doing business is not compatible with the TQM methods.

4. Stovepipes -- the lack of cross-functional awareness of the Quality philosophy.

5. Unrealistic expectations -- a drive for short term solutions and payoffs with TQM.

B. NAVY-MARINE CORPS

The following barriers to TQM implementation were articulated by members of the Navy and Marine Corps at the

Navy's Senior Leaders TQM Seminar. The Seminar was held from 16 September through 20 September 1991 at the Hyatt Regency in Monterey, CA. There were 24 officers present of flag rank down to the O-5 level.

1. Individual competition within the organization. The military's competitive environment and appraisal and promotion system is not team oriented.

2. Resistance in general to top down directions to do things differently.

3. People's feeling of "here comes another program!"

4. Management's perception of touchy-feely or "hug 'em and love 'em" way of doing business.

5. The current organization structure or chain of command, especially middle management with concern for losing power.

6. The bureaucratic change process too slow.

7. Costs too much time and resources to train and implement. Takes people and money away from activities personnel and units are evaluated on.

8. Current federal acquisition regulations, e.g., requirements for lowest bidder to win contracts.

9. Civilian personnel regulations requires individual evaluations.

10. Advocators of TQM don't use TQM.

11. TQM being thought of as a panacea, when it's found not to be, it will fade away.

12.   Every unit/supervisor will not be using the same measuring criteria for some time. Also, current measurement system not conducive to TQM processes.

13. Size and distribution of military makes it difficult to get everyone on board.

14. Comptrollers. Money people still in control of money, hence assets.

15. Ships may be the most difficult place to implement TQM.

16. Too difficult to stop using Management By Objective i.e., MBO works pretty well. Why change?

17. Continual movement of personnel. Trained facilitators and others moved to commands not ready. Also, it causes short organizational memory.

18. Units losing money because of it. Improve and reduce costs; money gets cut.

19. Quality outside of Beltway is different from quality inside the Beltway. What is found excellent and workable in the field is at odds with Headquarters ideas.

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